

1 7. (amended) A plasma chamber comprising:

- 2 a vacuum chamber enclosure enclosing a chamber interior;
3 a gas inlet aperture through which gas can be admitted into the chamber interior;
4 an exhaust aperture through which gas can be exhausted from the chamber interior;
5 an exhaust channel extending between the chamber interior and the exhaust aperture so as to
6 provide a path for gas flow from the chamber interior to the exhaust aperture;
7 a deflector positioned within the exhaust channel so as to transversely deflect a substantial
8 portion of said gas flow through the exhaust channel; and
9 a magnet system having north and south magnetic poles positioned adjacent the deflector.

1 8. (amended) A plasma chamber according to claim 7, wherein:

2 the exhaust channel comprises

3 a channel inlet aperture in fluid communication with the chamber interior,

4 a channel outlet aperture in fluid communication with the exhaust aperture, and

5 at least a first wall that extends between the channel inlet aperture and the channel outlet

6 aperture;

7 the deflector comprises a protrusion extending from the first wall of the exhaust channel into
8 the exhaust channel so as to reduce the transverse width of the exhaust channel adjacent the protrusion;

9 and

10 (the north and south poles of the magnet system are positioned within the protrusion.) - 112

1 9. (amended) A plasma chamber according to claim 8, wherein:

2 the north and south magnetic poles are spaced apart along said gas flow path of the exhaust
3 channel.

1 10. (amended) A plasma chamber according to claim 8, wherein the magnet system produces a
2 magnetic field strong enough to block plasma from extending from the chamber interior through the
3 exhaust channel beyond the protrusion.

1 13. (amended) A plasma chamber, comprising:

2 a vacuum chamber enclosure enclosing a chamber interior;

3 a gas inlet aperture through which gas can be admitted into the chamber interior;

4 an exhaust aperture through which gas can be exhausted from the chamber interior;
5 an exhaust channel including
6 a channel inlet aperture in fluid communication with the chamber interior,
7 a channel outlet aperture in fluid communication with the exhaust aperture, and
8 at least a first wall that extends between the channel inlet aperture and the channel outlet
9 aperture; and
10 a magnet system having north and south magnetic poles positioned adjacent the first wall;
11 wherein the plasma chamber does not include any other magnet adjacent said magnet system.

1 14. (amended) A plasma chamber according to claim 13, wherein:

2 the north and south magnetic poles are spaced apart along said gas flow path of the exhaust.

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1 15. (amended) A plasma chamber according to claim 13, wherein:

2 the north and south magnetic poles are adjacent a first area of the first wall; and

3 the magnet system produces a magnetic field strong enough to block plasma from extending
4 from the chamber interior through the exhaust channel beyond said first area.

1 26. (amended) A method of preventing plasma within a plasma chamber from extending completely
2 through the exhaust channel of the chamber, comprising the steps of:

3 providing a vacuum chamber enclosure that encloses a chamber interior;

4 admitting a gas into the chamber interior;

5 providing an exhaust channel extending between the chamber interior and an exhaust aperture
6 so as to provide a path for gas flow from the chamber interior to the exhaust aperture;

7 positioning a deflector within the exhaust channel so as to create turbulence in said gas flow
8 through the exhaust channel; and

9 creating a magnet field within the exhaust channel having a substantial component that is
10 transverse to said gas flow path.

1 27. (amended) A method according to claim 26, wherein the creating step comprises:

2 creating said magnetic field with sufficient strength to block plasma from extending from the
3 chamber interior to the exhaust aperture.
